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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,033	01/09/2004	David J. Holloway	12094U (COM)	7882

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EXAMINER	
CHEN, SHIH CHAO	
ART UNIT	**PAPER NUMBER**
2821	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/755,033	HOLLOWAY ET AL.	
	Examiner	Art Unit	
	Shih-Chao Chen	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☒ Claim(s) *24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 24 and 25 has been renumbered claim 23 and claim 24, respectively.Claim 16 is objected to because of the following informalities: in line 3, "a has an inverted cup cover" should be changed to --has an inverted cup cover--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 7-9, 12-18 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Stites et al. (U.S. Patent No.5,610,620).

Regarding claim 1, Stites et al. teaches in figures 1-4 an aircraft antenna [10], comprising: an aerodynamic housing structured [74] for attachment to an outer surface of an aircraft (See Abstract); a first system [18, 19] in the housing, the first system having an electromagnetic radiator [54, 20] and being tuned over a first band of

frequencies potentially to produce secondary radiations in at least a second band of frequencies; the first system having a suppression filter (i.e. first order notch filter, See FIG. 4) effective at the frequencies of the secondary radiations.

Regarding claim 2, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 1, wherein the secondary radiations are harmonics of frequencies in the first band and the suppression filter is a harmonic suppression filter (See FIG. 4).

Regarding claim 3, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 1, wherein the electromagnetic radiator [54, 20] exhibits a characteristic center frequency over a first defined bandpass, and the first system [19] includes a matching network (i.e. second order dist./lumped element matching section, See FIG. 4) having an operating center frequency close to the characteristic center frequency over a second defined bandpass, whereby simultaneous operation of the matching network and the electromagnetic radiator [54] form the first band of frequencies having a wider band than the first defined band and the second defined band.

Regarding claim 4, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 3, wherein the characteristic center frequency and the characteristic center frequency are equal to each other.

Regarding claim 7, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 3, wherein the matching network constitutes the internal inductance of electromagnetic radiator [55] and a matching capacitor [62].

Regarding claim 8, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 2, wherein harmonic suppression filter includes a notch filter (See FIG. 4).

Regarding claim 9, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 8, wherein the notch filter is a distributed component notch filter.

Regarding claim 12, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 1, wherein the system [18, 19] includes a second electromagnetic radiator [20] in the housing [74] and tuned over a second band of frequencies.

Regarding claim 13, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 12, wherein the second radiator [20] is a patch radiator and the first radiator is a cable radiator.

Regarding claim 14, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 12, wherein the second radiator [20] is a patch radiator and the first radiator is a cable radiator, and the secondary radiations are harmonics of frequencies in the first band.

Regarding claim 15 Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 12, wherein the second radiator [20] is a patch radiator and the first radiator is a cable radiator, and the secondary radiations are harmonics of frequencies in the first.

Regarding claim 16, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 12, wherein the housing [74] has an elongated shape to project from the surface of an aircraft and surrounding the cable radiator [54] and has an inverted cup cover [44] surrounding the patch radiator [20] and the filter (See FIG. 4) at the base [12] of the elongated shape.

Regarding claim 17, Stites et al. teaches in figures 1-4 an aircraft antenna [10]

as in claim 15, wherein the harmonic suppression filter is a notch filter (See FIG. 4).

Regarding claim 18, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 15, wherein the harmonic suppression filter is a band suppression filter.

Regarding claim 22, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 12, wherein the system [18, 19] includes a base [12] orienting the radiators [20, 54] into mutually limited coupled positions.

Regarding claim 23, Stites et al. teaches in figures 1-4 an aircraft antenna [10] as in claim 12, wherein the second radiator [20] is a patch radiator and the first radiator [54] is a cable radiator, and the secondary radiations are harmonics of frequencies in the first band; and the patch radiator [20] has a rectangular shape and the filter (See FIG. 4) is placed at the tip of the rectangular shape of the patch radiator.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5-6, 10-11 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stites et al. (Cited above) in view of Arevato (U.S. Patent No. 6,147,576).

Stites et al. teaches every features of the claimed invention in paragraph 4, except for attenuator; and microstrip notch filter (i.e. the notch filter includes a circuit board).

Arevato teaches in figures 2-4 attenuator [206]; and microstrip notch filter [214].

In view of the above statement, It would have been obvious to on having ordinary skill in the art at the time the invention was made to substitute the notch filter as shown in Stites et al. by using the attenuator; and microstrip notch filter as taught by Arevato in order to varying the resistor values changes the attenuation; and its electromagnetic response is determined by its dimensions (See col. 4, lines 8-11 & col. 5, lines 35-39).

Allowable Subject Matter

7. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 24 is the inclusion of the limitation of the matching network includes a shorted quarter wave stub connected across the electromagnetic radiator. It is this limitation found in the claim, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen

Shih-Chao Chen
Primary Examiner
Art Unit 2821

SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
May 12, 2005